APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,579	07/21/2003	Shaw Hwa Hwang	MR1035-1284	3380

4586   7590   05/02/2007

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EXAMINER
BURROWES, LAWRENCE J

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
05/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/622,579	HWANG, SHAW HWA
	Examiner	Art Unit	
	LAWRENCE J. BURROWES	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _21 July 2003_.

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-32_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-32_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _21 July 2003_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Claim Objections

2.   Claim 15 is objected to because of the following informalities:

In claim 15 line 4, it is suggested applicant replace "fisrt" with ---first---.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-32 rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

In claims 1-32, the claimed invention is directed towards a protocol which does

not fall within four categories of statutory subject matter.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 3, the recitation of "the login procedure" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 line 4, the recitation of "the location server" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 line, the recitation of "the testing Network Address Translation (NAT) procedure" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 line 7, the recitation of "the first virtual IP" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 line 7, the recitation of "the source port" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 line 10, the recitation of "the second virtual IP" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 line 18, the recitation of "the direct data transmission procedure" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 lines 18-19, the recitation of "the NAT-based router" has no antecedent basis. Similar problem exists in claim 17.

In claim 1 line 22, the recitation of "the data packet" has no antecedent basis. Similar problem exists in claim 17.

In claim 2 line 3, the recitation of "the Transmission Control Protocol (TCP)" has no antecedent basis. Similar problem exists in claim 18.

In claim 3 line 3, the recitation of "the User Datagram Protocol (UDP)" has no antecedent basis. Similar problem exists in claim 19.

In claim 5 line 6, the recitation of "the first source port information" has no antecedent basis. Similar problem exists in claim 21.

In claim 5 lines 10-11, the recitation of "the second source port information" has no antecedent basis. Similar problem exists in claim 21.

In claim 5 lines 12-13, the recitation of "the destination port information" has no antecedent basis. Similar problem exists in claim 21.

In claim 7 line 6, the recitation of "the third source port information" has no antecedent basis. Similar problem exists in claim 23.

In claim 7 lines 10-11, the recitation of "the fourth source port information" has no antecedent basis. Similar problem exists in claim 23.

In claim 17 line 11, the recitation of "the second location server" has no antecedent basis.

Claims 4, 6, 8-16 are rejected because they depend on claim 1.

Claims 20, 22, 24-32 are rejected because they depend on claim 17.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elgebaly et al (2002/0152325) hereafter Elgebaly in view of Fink et al (6,496,935) hereafter Fink.

For claims 1 and 17, Elgebaly teaches a direct peer-to -peer transmission protocol between two virtual networks, including the following procedures: (A) the login procedure, wherein a user in the virtual IP is keeping a connection with the location server of the real IP (see Figure 7, EP1 registers with NAT1 and EP2 register with NAT2 where both NATs are connected to the registration server); (B) the testing Network Address Translation (NAT) procedure, which includes the following sub-procedures: (B1) the calling end of the first virtual IP obtains the source port information of the first NAT-based router through the location server, and the same information will be transmitted to the called end of the second virtual IP through the same location server (see Figure 7 Box 710, 712, 714 and 716, a call is made with an embedded port that transfers through NAT1 to the reg server to NAT2); and (B2) the called end of the

second virtual IP receives the source port information from the calling end and then obtains the source port information of the second NAT-based router through the location server, and the same information will be transmitted back to the calling end of the first virtual IP through the same location server (see Figure 7 Box 718, 7120, 722 and 724, a call is made with an embedded port that transfers through NAT2 to the reg server to NAT1); (C) the direct data transmission procedure, which is located in the NAT-based router that allows data packet to be mutually transmitted between the first virtual IP and the second virtual IP (see paragraph 50 and Figure 7 Box 726 and 728, the connection is established between the two endpoints after all the setup signaling has completed).

Elgebaly disclose all the limitations of the claim invention except the following two situations: (C1) if the first virtual IP sends out the data packet first, then the second NAT-based router will discard the data packet, and, meanwhile, the transmission path for the first NAT-based router will be open, allowing the data packet transmitted by the second virtual IP subsequently to go through and complete the direct data transmission procedure; and (C2) if the second virtual IP sends out the data packet first, then the first NAT-based router will discard the data packet, and, meanwhile, the transmission path for the second NAT-based router will be open, allowing the data packet transmitted by the first virtual IP subsequently to go through and complete the direct data transmission procedure.

Fink from the same or similar fields of endeavor teaches the following two situations: (C1) if the first virtual IP sends out the data packet first, then the second NAT-based router will discard the data packet (see column 9, lines 8-16 and column 9

lines 27-39, the pre-filtering of the packet in the gateway will drop packets depending on session flag set in packet header), and, meanwhile, the transmission path for the first NAT-based router will be open, allowing the data packet transmitted by the second virtual IP subsequently to go through and complete the direct data transmission procedure (see column 7 lines 36-40, the connection is established if the conditions are satisfied by the pre-filter); and (C2) if the second virtual IP sends out the data packet first, then the first NAT-based router will discard the data packet (see column 9, lines 8-16 and column 9 lines 27-39, the pre-filtering of the packet in the gateway will drop packets depending on session flag set in packet header), and, meanwhile, the transmission path for the second NAT-based router will be open, allowing the data packet transmitted by the first virtual IP subsequently to go through and complete the direct data transmission procedure (see column 7 lines 36-40, the connection is established if the conditions are satisfied by the pre-filter).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify/implement the packet filtering of Fink into the NAT devices of Elgebaly by connecting the packet filtering device inside the NAT device. The motivation to do so would be so that the system avoids having repeated packets transmitted before they are acknowledged therefore avoiding collisions and congestion on the network.

Regarding **claims 13 and 15**, wherein in the procedure (C1), the first virtual IP can send out a plurality of different port data packets in a consecutive manner to the

second NAT-based router, and the second virtual IP can also send out a plurality of

different port data packets in a consecutive manner to the first NAT-based router (see

Figure 7 and paragraph 39, endpoint transmits packets with destination port numbers to

the other endpoint through the NATs since port numbers are arbitrarily selected).

Regarding **claims 14 and 16**, wherein among the port data packets sent out by

the first virtual IP, only one of the data packets can be successfully delivered to the

second NAT-based router, whereas among the port data packets sent out by the

second virtual IP, only one of the data packets can be successfully delivered to the first

NAT-based router (see paragraph 22, depending on the port that is arbitrarily selected

will determine which packets are delivered).

9.   Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Elgebaly in view of Fink, and in further view of Thernelius "SIP, NAT, and Firewalls".

For claims 2-4, Elgebaly in view of Fink disclose all the limitations of the claimed

invention except wherein the user in the virtual IP is using the Transmission

Control Protocol (TCP) for keeping the connection with the location server;

wherein the user in the virtual IP is using the User Datagram Protocol (UDP) for

keeping the connection with the location server; and wherein the data packet is

selected from either the TCP data packet or the UDP data packet.

Thernelius from the same or similar fields of endeavor teaches wherein

the user in the virtual IP is using the Transmission Control Protocol (TCP) for

keeping the connection with the location server (see Figure 2 and Figure 3, UDP packets are used for transmitting); wherein the user in the virtual IP is using the User Datagram Protocol (UDP) for keeping the connection with the location server (see Figure 2 and Figure 4, TCP packets are used for transmitting); and wherein the data packet is selected from either the TCP data packet or the UDP data packet (see Figure 2, the segments that are transmitted use either a TCP or UDP header).

Therefore, it would have been obvious to one of ordinary skill in the art the time of the invention to modify/implement the protocols of Thernelius into the combined invention of Elgebaly in view of Fink by programming the NAT devices to use UDP and TCP to communicate. The motivation to do so would be so that the system would be able to connect to the internet and have a more robust profile since TCP is a reliable connection protocol and UDP has a best effort reliability.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Galinksky et al (WO 200203217 A1), Leung et al (6985479), Molitor (6661799), Schuster et al (6822957), Xu et al (7072341), Dobbins et al (7193996), Xu et al (7050422), Bal et al (6457061), Johansson et al (2002/0080752), Watson (6674758) and Ju et al (6697377).
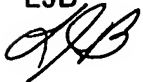
11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAWRENCE J. BURROWES whose telephone number is (571) 270-1419. The examiner can normally be reached on Monday - Thursday 5:30am - 2pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing F. Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJB

WING CHAN
SUPERVISORY PATENT EXAMINER